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Research Article

THE ANTIBIOTIC IS NEEDED IN CLEAN SURGERY?

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ABSTRACT

Induction: Infection of soft tissue is a common complication of any surgical procedure. on the part of both the patient's bacterial flora and the environmental bacterial flora. It has an incidence that ranges from 10.6% to 22.2% depending on the type of intervention; a considerable part of the infections were observed after discharge **Materials and methods**: The study was performed between October 2012 and January 2016. Patients undergoing invasive procedures and diagnostic procedures were included for various indications in the departments of both clinical surgery II and Catania AOU surgery. Both urine samples for microscopy and cultures in all patients were collected and collected at hospitalization prior to both diagnostic and therapeutic procedures. Two subsequent blood cultures were performed in patients, with a 30-minute interval between them, 1 hour after the procedure. The sample recruited for the study included a total of 160 patients, of which 96 (60%) male and 64 (40%) female. The average age of patients was 52.5 years (range 20-85 years) **Result**s: In our study, we found one of significant bacteriuria after cystoscopy only in 10-12% of the observed cases. Urine culture detected before the procedure and intervention highlighted the need for antibiotic prophylaxis that was found to be effective on Escherichia coli strains isolated in urine, which had multiple antimicrobial resistance producing broad-spectrum beta lactamases (ESBL). **Conclusions:** In the diagnostic and therapeutic procedures of contaminated clean and clean surgery, a single dose of prophylaxis is confirmed to be effective in reducing the risk of infection after a careful analysis of the patient. In the contaminated surgical procedures, the antibiotic therapy must be reasoned. and to have the anamnestic data, the immunological profile, in addition to the microbiological data of the most widespread bacteria in the hospital where it operates, before being able to proceed with specific therapeutic treatment in order to prevent the infectious risk with the most effective antibiotic programming of the infectious agent that infection

INTRODUCTION

Infection of soft tissues is a common complication of any surgical procedure. On the part of both the patient's bacterial flora and the environmental bacterial flora. It has an incidence that ranges from 10.6% to 22.2% depending on the type of intervention; a considerable part of the infections were observed after discharge. It is also that for some interventions the frequency of infections is higher during hospitalization, while for others, after the discharge. the indiscriminate use of antibiotics increases the prevalence of antibiotic-resistant bacteria (1,2,3,4) and predisposes patients to infections such as Clostridium difficile colitis (5,6,7,8) The alarming and progressive spread of multi-drug resistant pathogens (multi-drug resistent organisms) causes infections to be a real clinical emergency. They are associated with a significant increase in mortality and morbidity, with a lengthening of hospitalization time as well as greater management complexity of the patient and human resources with a consequent increase in costs. This problem acquires an even more relevant value if focused, on a cluster of patients, such as those subjected to kidney transplantation and immunosuppresses, which for their surgical, clinical and therapeutic path are easily susceptible to their own infections of germs and, therefore, more exposed to therapeutic failure The classification of infections of the urinary tract (UTI) most used over time has been the one developed by the Centers for Disease Control and Prevention. The classification was then further enriched by categories

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developed by the Infectious Disease Society of America / European Society of Clinical Microbiology and Infectious Diseases (IDSA / ESCMID) in 1993, these studies introduced the concept of "complicated" and "non-complicated" infections. ". The term "non-complicated" defined a clinical situation in which the patient is not carrying any risk factor that makes him susceptible to the development of an infection. By "complicated" we mean instead a clinical situation characterized by the presence of a predisposing risk factor, linked to alteration of the urinary tract, anatomical obstruction, calculi, derivations, catheterization, or pathologies with systemic comorbidities (diabetes mellitus, tumors or conditioning diseases). immunosuppression). Or a situation with a high risk of developing complications if not properly treated, such as pregnancy and pediatric age. Antibiotic resistance is a widespread and current problem. Since many studies support the link between the amount of antibiotics used and the emergence of resistance, it becomes therefore extremely necessary to make antibiotics a contained and rational use. Furthermore, the emergence of multiresistant strains increases costs both directly, linked to hospitalization, for prolonged healing times and morbidity. The immoderate use of broad-spectrum antibiotics such as fluoroquinolones, cephalosporins and aminoglycosides has created a high rate of resistance that today is very disturbing. We are witnessing a worrying increase in the isolation of Escherichia coli producers of broad-spectrum beta lactamases (ESBL) also in community infections. Therefore, a reflection on the reasoned and appropriate use of antibiotic therapy is absolutely necessary. In this study the need of the antibiotic therapy is evaluated in both urological and general surgery procedures in relation to the clinical presentation, the patient's risk category, the degree of severity of the infection, the pathogens involved and the availability of antibiotics

MATERIALS AND METHODS

The study was performed between October 2012 and January 2016. Patients undergoing invasive procedures and diagnostic procedures were included for various indications in the departments of both clinical surgery II and Catania AOU surgery. Both urine samples for microscopy and cultures in all patients were collected and collected at hospitalization prior to both diagnostic and therapeutic procedures. Two subsequent blood cultures were performed in patients, with a 30-minute interval between them, 1 hour after the procedure. The sample recruited for the study included a total of 160 patients, of which 96 (60%) male and 64 (40%) female. The mean age of the patients was 52.5 years (range 20-85 years). Infections were evaluated on the following criteria: Anatomical site of infection, Degree of infection severity, Presence of risk factors, Microbiological evidence. The infections assessed included superficial and deep wounds, urinary tract infections or specific organ, systemic infections, infections of other sites and apparatuses. In the general risk factors the advanced age was evaluated. The presence of co-morbidities: such as diabetes, malnutrition, overweight, the status of Immuno depression. For the presence of specific factors were evaluated the previous infections of the urinary tract or urogenital infections, presence of catheters, duration of preoperative hospital stay, the type of surgery, surgical invasiveness, duration of surgery, possible intraoperative problems

RESULTS

In our study, we found one of significant bacteriuria after cystoscopy only in 10-12% of the cases observed. Urine culture detected before the procedure and intervention highlighted the need for antibiotic prophylaxis that was found to be effective on Escherichia coli strains isolated in urine, which had multiple antimicrobial resistance producing broad-spectrum beta lactamases (ESBL). The clinical history and history and febrile symptomatology, were directed at the end of an empirical antibiotic prophylaxis initiated without the need for urine culture. The comorbidities present in 52% of cases were diabetes, (35%) severe hypertension (20%), advanced age (> 75 years) (36%) malnutrition, and presence of bladder catheters. (9%). duration of the average hospital stay was 10GG, in general surgery with invasiveness (91%), the median duration of the operative action was 60minutes. the indications of the choice of the antibiotic, the dose, the route of administration (EV) were due to the presence of the wide-ranging antibiotic present in the hospital pharmacy at that time, after the antibiogram. the duration of treatment in the clean procedures consisted in a single administration, in the contaminated cleans proceeded to a short / 24 hours cycle with administration every 8 hours. In the problems of the contaminated interventions the antibiotic therapy was carried out 7-8gg on average, but an immunological profile of the patient was determined that in the presence of an alteration the immunoglobulin was administered in order to increase the effectiveness of the antibiotic that was administered. the most affected site of infections were: urological surgery, (10-12%), proctologic surgery (10%), soft and subcutaneous tissues, (10%) and biliary tract, (3%) and abdominal surgery (resections) intestinal (65% of cases) the responsible strains are shown in Table 1

Tab 1 bacteria strains responsible for hospital infection

Escherichia coli
Klebsiella pneumonite
Non-enterococcal group D streptococcus
Antimicrobial susceptibility of microorganisms
Penicillin (SAM / AMC) Third Generation
cephalosporins
quinolone (ciprofloxacin / ofloxacin)
Nitrofurantoin
Carbapenems (imipenem / meropenem)
Glycopeptides (vancomycin / teicoplanin

DISCUSSION

A correct policy for a good use of antibiotics should therefore identify prescription strategies in order to optimize: the choice of antibiotic, the dose, the route of administration, the duration of treatment taking into account that in the last 40 years the industries Pharmaceuticals have produced antibiotics in a constant way and with mechanisms of action that are always different, a situation that has totally reversed, since currently there are few industries that are making new antibiotics. The correct use of the antibiotic-therapy is based on the knowledge of the pharmacology and pharmacokinetics of the antibiotic that we plan to use, on the characteristics of the pathogen we want to treat at the site of infection, the site of the intervention the presence of any allergies to antibiotics the toxicity Intrinsic of the drug and its possible interactions the efficacy demonstrated in randomized controlled trials of the effects on the ecosystem. In the presence of the clinic that is not clear, in

the first instance a microbiological sampling is necessary before the reasoned therapy. Clearly empirical therapy can be initiated by taking into account the pathogens most responsible for infection in the hospital environment where the patient is hospitalized. The purpose of antibiotic prophylaxis in urological and general surgery is to prevent infectious complications following diagnostic procedures or therapeutic at the time of surgery or in the postoperative period, in order to minimize the effects of antibiotics on the patient's bacterial flora; minimize the side effects of antibiotics; to induce the least possible modifications to the patient's immune defenses. (9,10.11) The consequence of the ever increasing use of antibiotics is represented by the increase in the number of cases of colitis or diarrhea associated with Clostridium difficile, which in our reality is limited to 1% of the cases observed. The risk factors observed in our study were multiple and correlated both to surgical treatment especially in urgency when it is not possible to view the patient's severity program with an antibiotic targeted therapy based on the knowledge of the pathogen, on the real extent of the site of infection on the compromise of the patient's immunological defenses. Another risk factor was diabetes, especially if it occurred at a young age in the presence of widespread arteriopathy that reduces the pharmacokinetics of the drug. Then from the bile ducts in the presence of a previous sphincterotomy and pre-existing cholangitis, accompanied by the presence of micro calculi on the biliary tract, or of prosthesization in progress. Opposed in patients with a history of anaphylaxis, urticaria or rash reported immediately after penicillin therapy which are at greater risk of presenting an immediate hypersensitivity phenomenon and should not be given prophylaxis with beta-lactam antibiotics. (12.13.14.15) This has led to a difficult to find effective medication. Finally, the presence in hospitals and especially in the intensive therapies of modified strains responsible for a super bacterial infection has produced an increase in the infectious risk with a lengthening of the stay in patients who have stayed there for a short time. In our opinion, these sentinel events entail a change in the management of hospital stays, since the widespread use of the old molecules (80 years) of antibiotic therapy, of generic drugs (under dosed) widely used in hospital facilities. Aimed at reducing management costs. It is responsible for part of the disappearance of pharmacological research (very low profits), as well as in the last decade that in serious and complex cases in which even the carbapenems prove ineffective, we begin to watch helpless and disappointed patients' exit. It is therefore necessary to rethink the use of hospitalization, in a vision of a very brief hospitalization and subsequent treatment at the patient's home, to reduce the risk of exposure of the patient in environments with presence of bacterial strains that are difficult to treat. Moreover, this strategy produces benefits in terms of hospital management costs.

CONCLUSIONS

In the diagnostic and therapeutic procedures of contaminated clean and clean surgery, a single dose of prophylaxis is confirmed to be effective for reducing the risk of infection after a careful analysis of the patient. In the contaminated surgical procedures it is necessary that the antibiotic therapy is reasoned and have the anamnestic data, the immunological profile, in addition to the microbiological data of the most widespread bacteria in the hospital where it operates, before being able to proceed with specific therapeutic treatment in order to prevent the infectious risk with the most effective antibiotic infectious agent that infectious. In relation to the data collected, an indication emerges to review the procedure for access to hospitalization of patients in order to reduce the risk exposure. The problem of intensive therapies, due to the presence of super infections from multi-resistant bacteria, requires the need to review and plan new and safer access paths for both in-hospital and intensive care, with a logistical review of hospitalization. Prophylaxis antibiotic is still today the subject of discussions.; due to the presence of non-unique statistical data. These discrepancies are even more evident from one country to another. A problem that has become increasingly relevant due both to the observance of national and / or international guidelines, and to the considerable increase in bacterial resistance a universal phenomenon. For this reason and It is desirable that each country styles recommendations based on their sensitivity / resistance profiles

References

1. Bjerklund-Johansen TE, Botto H, Cek M, *et al*. Critical review of current definitions of urinary tract infections and proposal of an ESU/ESIU classification system. *Internat J Antimicrob Agents* 2011 Dec; 38S:64-70.
2. Garner JS, Jarvis WR, Emori TG, *et al*. CDC definitions for nosocomial infections. *Am J Infect Control* 1988; 16:12840.
3. Horan TC, Andrus M, Dudeck MA. CDC/NHSN surveillance definition of health care-associated infection and criteria for specific types of infections in the acute care setting. *Am J Infect Control* 2008; 36:309-32.
4. Rubin USE, Andriole VT, Davis RJ, *et al*. Evaluation of new anti-infective drugs for the treatment of UTI. *Clin Infect Dis* 1992; 15:216.
5. Rubin UH SE, Andriole VT, Davis RJ, *et al*, with a modification by a European Working Party (Norrby SR). General guidelines for the evaluation of new anti-infective drugs for the treatment of urinary tract infection. The European Society of Clinical Microbiology and Infectious diseases, *Taukirchen, Germany,* 1993, p. 240-310.
6. Naber KG. Experience with the new guidelines on evaluation of new antiinfective drugs for the treatment of urinary tract infections. *Int J Antimicrob Agents* 1999;11:189-96
7. Cystic Fibrosis Trust. National Consensus Standards for the Nursing Management of Cystic Fibrosis. UK Cystic Fibrosis Nurse Specialist Group. 2001.
8. McCallum SJ, Corkill J, Gallagher M, Ledson MJ, Hart CA, Walshaw MJ. Superinfection with a transmissible strain of Pseudomonas aeruginosain adults with cystic fibrosis chronically colonised by P. aeruginosa *Lancet* 2001; 358:558-560.
9. Nixon GM, Armstrong DS, Carzino R, Carlin JB, Olinsky A, Robertson CF, *et al*. Clinical outcome after early Pseudomonas aeruginosa infection in cystic fibrosis. *J Pediatr* 2001; 138:699-704
10. Ratjen F, Doring G, Nikolaizik WH. Effect of inhaled tobramycin on early Pseudomonas aeruginosa

colonisation in patients with cystic fibrosis. *Lancet* 2001; 358: 983-984

11. Kalil AC *et al*. Management of Adults With Hospital-acquired and Ventilator-associated Pneumonia: 2016 Clinical Practice Guidelines by the Infectious Diseases Society of America and the American Thoracic Society. *Clin Infect Dis*. (2016) 63 (5): e61-e111. doi: 10.1093/cid/ciw353
12. Giorgio Maria Paolo Graziano *et al*. 2017, Which Treatment in The Zenker Diverticulum. *Int J Recent Sci Res.* 8(11), pp. 21612-21616. DOI**:** http://dx.doi.org/ 10.24327/ijrsr.2017.0811.1107
13. Giorgio Maria Paolo Graziano *et al*.2017, Role of Genetic Mutations In The Diagnosis of Gallbladder Neoplasms. *Int J Recent Sci Res.* 8(10), pp. 20908-20913. DOI: http://dx.doi.org/10.24327/ijrsr.2017. 0810.0982
14. Karmouni T, Bensalah K, Alva A, Patard JJ, Lobel B, Guille F. Role of antibiotic prophylaxis in ambulatory cystoscopy. *Prog. Urol.* 2001; 11 : 1239-41.
15. Wilson WR, Henry NK. Urinary tract infections. In: Wilson WR, Sande MA (eds). *Current Diagnosis and Treatment in Infectious Diseases*. The Mc Graw-Hill Companies, New York, 2001; 220-30.

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